DOCUMENT RESUME

ED 179 407 SE 029 412

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TITLE	Connect, Unesco-UNEP Environmental Education Newsletter, Vol. II, No. 2, July 1977.
INSTITUTION	United Nations Educational, Scientific, and Cultural Organization, Paris (France).
PUB DATE	Jul 77
NOTE	9p.; Not available in hard copy due to copyright restrictions; For related documents, see SE 029 411-414
JOURNAL CIT	Connect; v2 n2 Jul 1977
EDRS PRICE	MF01 Plus Postage. PC Not Available from EDRS.
DESCRIPTORS	*Environment; *Environmental Education; *Government Role; *Information Dissemination; International Education; International Organizations; *International Programs; International Relations; Natural Resources; *Newsletters; Planning; Public Policy

ABSTRACT

This newsletter on environmental education discusses the Intergovernmental Conference on Environmental Education held in Tbilisi, USSR in October, 1977. Presented are accounts of the preparations and consultations relative to the conference. A provisional agenda and discussion thereof is presented. Also included in the newsletter are analyses of meetings on environmental education held in various regions of the world. A review of an annotated bibliography of world environmental education trends, published by the International Bureau of Education, is included. (RE)

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Connect

UNESCO-UNEP ENVIRONMENTAL EDUCATION NEWSLETTER

Vol. II, No. 2. July 1977

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From Stockholm to Tbilisi

Development and its impact on the environment—environmental problems and the quality of human life—have become a major preoccupation of governments and peoples throughout the world.

In 1972 this global concern led to the United Nations Conference on the Human Environment, which was held in Stockholm. Here participants stressed the role of education, of both the public and the specialist, in the solution and prevention of the world's environmental problems. Recommendation 96 particularly called on "the organizations of the UN system, especially Unesco... /to/ take the necessary steps to establish an international programme in environmental education, interdisciplinary in approach, in-school and out-of-school, encompassing all levels of education and directed towards the general public..." After UNEP (United Nations Environment Programme) was established, environmental education and training became one of its principal supporting measures.

In response to the Stockholm Recommendation, Unesco and UNEP jointly launched the current International Programme for Environmental Education, which commenced in January 1975. Now, as a culmination of the initial three-year phase of that Programme, the world is witnessing the convocation of the first ministerial level Intergovernmental Conference on Environmental Education to be held in Tbilisi, USSR, from 14 to 26 October 1977.

This issue of *Connect* is devoted to a report on the preparations, agenda, working and reference documents of the Tbilisi Conference, and the larger problems likely to be discussed by the participants.

The Intergovernmental Conference on Environmental Education

Invitations have been sent by Unesco's Director-General to all Member and Associate Member States to be represented at the Intergovernmental Conference on Environmental Education, which will assemble in Tbilisi in October.

Certain non-Member States, organizations of the United Nations system, and intergovernmental and non-governmental organizations have been invited to send observers to the Conference, at which six to seven hundred participants are expected.

The first ministerial-level Conference on Environmental Education will be convened by Unesco, pursuant to Resolution 1.161 adopted by the General Conference at its nineteenth session, with the technical and intellectual cooperation and financial support of UNEP within the general framework of the collaboration between UNEP and Unesco in the field of environmental education and training.

"The purpose of the Conference," letters of invitation read, "will be to formulate recommendations for action which might be undertaken at the national, regional and international levels for the promotion and development of environmental education." Accordingly, "it is expected that the Conference will deal with general environmental education of the public at varying levels and in different types of formal and non-formal educational systems, as well as the education and training of particular professional groups whose actions and decisions have a definite bearing on the environment."

In view of the areas to be covered by the Tbilisi Conference—from general environmental problems to specific strategies for the development of environmental education—the Director-General of Unesco, in his letter of invitation, further expressed the desire that in their preparations for the Conference, governments give consideration "to involving specialists and responsible officials from these areas" and in the delegations sent to the Conference to "include officials from education and *other* sectors concerned with programmes of

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environmental education and training" (our emphasis).

Preparations

In a sense, all activities of the Unesco-UNEP International Programme have been preparations for the Tbilisi Conference, where governmental policies and strategies for the development of environmental education, nationally, regionally and internationally, will be discussed, sifted and formally recommended.

Generally, the Programme's activities have been conducted in three principal areas:

- initial research, experimentation and development of innovations in the field of environmental education;
- collection, organization and dissemination of information concerning environmental education;
- promotion of the discussion and elaboration of policies and strategies for the development of environmental education locally, nationally, regionally and globally.

Specifically, preparations for the Tbilisi Conference have involved the following activities in the areas or categories listed above:

- Background *research* has involved (1) consultant missions and (2) a world survey of environmental education needs and priorities. In 1975 twelve environmental education experts conducted individual trips in 81 of 99 Unesco Member States of the developing world. They aided Ministers of Education and their working teams in replying to a Unesco questionnaire on their nations' environmental education needs and priorities. They identified ways and means for assisting the Member States visited, gathered information essential for the new international environmental education programme and filed extensive country-by-country reports.

The world survey aimed at providing the specific information permitting the formulation of effective strategies for action at the global, regional and national levels. It was principally based on the 177-item questionnaire sent by Unesco to Member States which obtained a response of over 80%. Additional information came from the consultant mission reports and UN statistical documents. The assessment and analysis of the survey's results will appear by autumn of this year as a publication entitled, *Environmental Education Needs and Priorities: A World Survey*, and will be available to Conference participants as a reference document.

Supporting a series of pilot projects has been an important activity in the area of testing and development of innovations in the environmental education and training process.

- The initial activity in the second area or category—collecting, organizing and distributing information—involved the preparation of state-of-the-art or trend papers on environmental education throughout the world, covering fourteen of its aspects and all of its age levels. Authors were selected from every region. The papers they prepared were presented for discussion at the first international expert meeting convened under the Unesco-UNEP International Programme for Environmental Education in Belgrade, Yugoslavia, October 1975. The papers were then rewritten, based on the comments and contributions of the experts at the Belgrade Workshop, and will appear by this summer as a publication of over 500 pages entitled, *Trends in Environmental Education*. It will be another reference document for participants at the Tbilisi Conference.

An information and communication system has also been established. It involves a computerized network for the collection and dissemination of information about individuals and institutions active in environmental education in all regions of the world. About 8,000 names and addresses are registered at present; more are being added constantly. Specific information about those recorded in the network has been gathered through detailed questionnaires which have been coded and introduced into a computer for quick retrieval and print-outs. Two network directories are planned for publication this year: one on individuals and a second on institutions, each describing respective functions and activities in the field of environmental education.

In the same category of information and communication, a newsletter, *Connect*, has been established as a forum and media of exchange of information and ideas in the context of the International Programme for Environmental Education. It appears three times a year in English, French and Spanish and is distributed to all those recorded in the network as well as in varying quantities to appropriate UN agencies and other intergovernmental and non-governmental organizations.

- Stimulation and promotion of discussions and elaborations of action policies and strategies at all levels in the field of environmental education has meant primarily the convening of the series of meetings which will climax in the Tbilisi Conference of October 1977. The Belgrade Workshop, already referred to, was conceived as the springboard for the new international environmental programme launched jointly by Unesco and UNEP. It was followed by the meetings of experts held in every region of the world—Africa, the Arab States, Asia, Europe-North America and Latin America—during the autumn and winter of 1976-1977. The meetings, devoted exclusively to environmental education, were convened for the purpose of identifying and discussing regional activities, reviewing guidelines and formulating strategies for future regional and sub-regional developments.

All five regional meetings underlined the significance and importance of the forthcoming Intergovernmental Conference on Environmental Education. A summary of their recommendations is being forwarded as a reference document for participants at the Conference.

Consultations

Preparations for the Tbilisi Conference on Environmental Education—in addition to what has been previously described—have included a number of consultations. Within Unesco an intersectoral committee was formed among the education, science, social sciences, culture and communication sectors for this purpose. Work on the provisional agenda and main working document for the Conference was particularly emphasized in view of the multidisciplinary, multifaceted character of environmental education.

Throughout preparations for the Conference, close cooperation was maintained between Unesco and UNEP within the framework, and in the spirit of, their joint International Programme for Environmental Education. This has meant consultation on the provisional agenda to be presented to the Conference in October, substantial contributions of UNEP to the main working document drafted by Unesco, and two documents which are entirely the production of UNEP:

(1) a paper titled *Major Environmental Problems in Contemporary Society*, which corresponds to the first item on the provisional agenda, and (2) a detailed account of UNEP's activities in environmental education and training.

Preparations for the Tbilisi conference have included consultations with IUCN (International Union for the Conservation of Nature and Natural Resources) on the provisional agenda and the outline of the main working document, and with the host country (Union of Soviet Socialist Republics), concerning material and other aspects of the intergovernmental meeting.

This was soon followed by the third ad hoc interagency consultation on environmental education and training. It was convened in the general context of Recommendation 96 of the Stockholm Conference and more specifically in accordance with agreements reached within the Sub-Committee on Education and Training of the UN's Administrative Committee on Coordination (ACC). All agencies concerned were invited. Representatives of the International Labour Organization, the UN Institute for Training and Research, the World Health Organization, the World Meteorological Organization, as well as UNEP, attended.

The general purpose of the interagency consultations has been to exchange information and promote cooperation on activities relating to environmental education and training. In addition, a specific objective of the third consultation was to inform other agencies of preparations being undertaken by Unesco in cooperation with UNEP for the Intergovernmental Conference at Tbilisi in October.

Provisional Agenda of the Tbilisi Conference

The substantive points of the provisional agenda for the Conference at Tbilisi involve consideration of the following themes:

I Major environmental problems in contemporary society

II The role of education in facing the challenges of environmental problems

III Current efforts at the national and international levels for the development of environmental education

IV Strategies for the development of environmental education at the national level:

- A. General environmental education of the public through formal and non-formal education
- B. Environmental education (including in-service education) of particular professional groups whose actions and decisions have implications for the environment

V Regional and international cooperation for the development of environmental education: needs and modalities

A working document corresponding to the five themes above is being prepared, as previously mentioned, *for distribution to Conference participants*, in order to aid discussions and highlight problems concerning which participants might wish to formulate recommendations for possible actions at the national, regional and global levels.

As for the Conference itself, inputs for the principal working document came from virtually all the activities—meetings, consultations, studies and reports—of the Unesco-UNEP International Programme for Environmental Education. Specifically, these might be mentioned: (1) *Environmental Education Needs and Priorities: A World Survey;* (2) *Trends in Environmental Education;* (3) reports of expert missions to 81 Member States of the developing world; (4) results of the Belgrade Workshop and of regional and sub-regional meetings on environmental education; and (5) information contained in project proposals from every region of the world. (See *above* for details about these sources as well as UNEP collaboration and interagency consultations). Lastly, a preliminary draft of the working document was reviewed by a group of experts from the world's regions, who met in Unesco's headquarters for the purpose of counselling the secretariats of Unesco and UNEP on its final form and content. The definitive version is still being drafted as *Connect* goes to press.

In addition, an annotated provisional agenda has been prepared by the Secretariat of Unesco. Here it might be useful to indicate some of the broad lines tentatively sketched in both documents according to the substantive points of the provisional agenda:

Major environmental problems in contemporary society—A frame of reference will be provided for discussions and recommendations concerning the role of education in the perception, solution and prevention of environmental problems. The ideas presented will reflect in general the concepts which emerged at the Stockholm Conference on the Human Environment (1972) and were further developed by Unesco and UNEP in their joint and separate programme activities.

A primary concept involves consideration of the environment as a totality, as the natural and social system in which human beings and other organisms live and from which they draw sustenance. Major environmental problems, in turn, will be analyzed according to the scale of the geographical areas affected (local, national, regional or global), the kind of biophysical and social concerns which arise and the type of problems that differing patterns and rhythms of development can pose.

The significance and implications of environmental problems in the context of development will receive special attention, as will the human environment in the perspective of a new international economic and social order. The solution of environmental problems, it might be suggested, lies not so much in the field of technology, though technological skills are often essential, as in coping with the social, economic and cultural factors giving rise to them. In this connection, the development of a general framework for education concerning the environment for all sectors of society, inside and outside the school system, as called for in Recommendation 96 of the Stockholm Conference, becomes of paramount importance.

The role of education in facing the challenges of environmental problems—The concept, goals, objectives, audiences and characteristics of an education concerned about the environment, both natural and man-made, are considered at this point.

Environmental education is seen as part of the entire educational process rather than as a separate subject, such as mathematics, physics or biology, simply to be added to educational curricula. A primary goal would be to open individuals to a comprehension of the complex nature of the environment, the

interdependance of its biological, physical, social and cultural aspects. This in turn could motivate rational and responsible behaviour in the utilization of the earth's resources for the satisfaction of material and spiritual human needs now and in the future. Furthermore, environmental education stresses the role and importance of the environment in economic, social and cultural development. Lastly, it leads to an understanding of the interlocking nature of the world's environments, contributing to a sense of reciprocal responsibility among nations and regions.

The achievement of such goals assumes an educational process which establishes as its objectives to develop individually and collectively environmental awareness; knowledge and skills; and socially sound values and behaviour. As for the audiences of environmental education, they are conceived as composing all members and social categories of a community at all age levels, inside and outside the formal school system.

A functional and methodological distinction may be made among three types of environmental education and training: (1) the general environmental education of the public from childhood through adulthood in both the formal and the non-formal education sectors; (2) the environmental education of specific professional and social groups whose actions have an influence on the environment (engineers, architects, urbanists, economists, workers, industrialists, et al.); and (3) the training of scientists, technologists and other professionals who deal directly with environmental problems (foresters, biologists, hydrologists, ecologists, and the like).

The characteristics of environmental education which are involved in the sucessful achievement of its stated goals and objectives include: a problem-solving approach; an inter-and multidisciplinary methodology; and a community-based orientation—all in a continuous, lifelong educational process.

Current efforts at the national and international levels for the development of environmental education—The main working document for the Tbilisi Conference will attempt to outline major trends in current environmental education efforts, as well as the problems and constraints confronted, at the national and international levels. The principal sources are the reports and documents described in the paragraphs on preparations for the Conference, several of them available in published form, such as *Trends in Environmental Education* and *Environmental Education Needs and Priorities*. Space does not allow even a summary of the activities within the United Nations system, particularly of Unesco and UNEP, much less those of Member States and the growing number of governmental and non-governmental organizations concerned about education for the environment.

Strategies for developing environmental education at the national level—The attention of participants at the Conference, who may wish to formulate recommendations aimed at stimulating and orienting the development of environmental education in Member States, will be particularly invited to the following:

- the need to integrate environmental education as a fundamental objective and dimension in (1) national policies and plans for the development of education for the public, appropriate social and professional groups, and specialists in environmental fields, as well as in (2) educational reform and innovation efforts;
- the possibility of establishing or reinforcing the interdisciplinary and inter-institutional grouping of educators, scientists and professionals in environmental fields thus aiding educational policy-makers to incorporate the environmental dimension in the various levels and forms of in-school and out-of-school education;
- the need to develop within each Member State an action programme with the goal of familiarizing educators, educational administrators and planners with the different aspects and problems of the environment as well as furnishing them with the training for efficiently embodying environmental education in their respective activities;
- the special effort required for the creation and utilization of appropriate environmental education materials;
- the need for immediate measures within the formal education system, pending longer-term planning, which provide for: (1) incorporating environmental education in traditional disciplines; (2) developing multidisciplinary educational models for teaching about the environment; (3) stimulating interdisciplinary coordination and cooperation; and (4) adopting a more flexible teaching/learning relationship with the local community and environment;
- the advisability of defining more clearly the role in non-formal environmental education of programmes and activities involving youth and adults, such as literacy programmes, apprenticeships, professional retraining, family education, and so forth, many of which are being actively conducted in Member States;
- the advisability of more effective use of the mass media—radio, television and the press—in the field of environmental education both inside and outside the school system, involving the stimulation and production of appropriate programmes, the training of mass-media personnel in environmental matters and the coordination of the ministries and other organisms concerned, both government and nongovernment;
- the advisability of referring to current efforts conducted by many countries in research, experimentation and development of new methods, contents and instruments for environmental education.

Concerning experimentation, the establishment of a network of educational institutions may be suggested for consideration. Such a network could be charged with the systematic evaluation of diverse experimental results and, where positive, their progressive transferance to other institutions and educational programmes. Regarding basic research, particular attention will be invited to perception of the environment and responsible social behaviour.

Regional and international cooperation for the development of environmental education—The concluding section of the main working document will describe the many cooperative efforts already undertaken and invite recommendations and guidelines for the future, particularly for the UN system as a whole and for the agencies most directly concerned about the environment, its problems and their educational solution, namely, Unesco and UNEP.

Lastly, participants at the Tbilisi Conference may be asked to consider the recommendations they will have formulated as elements of an *action plan* for the promotion and development of environmental education regionally, internationally and globally.

Recent Meetings on Environmental Education

In addition to the five regional meetings on environmental education convened by Unesco and UNEP (see *Connect*, Vol. II, No. 1, March 1977), the period 1976-early 1977 recorded a number of meetings, seminars and workshops whose results have been studied in preparation for the Tbilisi Conference. Reports on these assemblies follow below in chronological order.

The RECSAM Workshop on Environmental Education

Announced as a follow-up of Unesco's International Workshop on Environmental Education, held in Belgrade, October 1975, the RECSAM Regional Workshop was convened by the Regional Centre for Education in Science and Mathematics (RECSAM) in Penang, Malaysia, from 2 to 13 August 1976 with the following objectives:

- to enable member countries of the Southeast Asian Ministers of Education Organization (SEAMEO) to exchange information and experiences on available resources and curriculum materials related to the development of environmental education;
- to explore ways and means for the development of local curriculum materials, including use of inexpensive local resources and low-cost relevant educational technologies in learning and teaching;
- to draw up proposals to carry out a regional long-term project on environmental education.

The workshop was attended by three delegates each from Indonesia, Malaysia, Philippines, Singapore and Thailand. Other participants comprised consultants from colleges, universities, schools and faculties; officials from various ministries; and observers from Unesco and other bodies.

Outcomes of the workshop included: (1) a definition of the goals and objectives of environmental education (largely similar to those of the Belgrade Workshop); (2) an assessment of needs in the curriculum for environmental education at the regional and national levels (cooperation and coordination, training of personnel, development of programmes, materials and research in environmental education); and (3) a proposed blueprint for a long-term regional project on the development and use of environmental education materials in two phases: first, the development of prototype instructional materials and methods, and second, the training of key personnel in their production and use.

An outcome of particular international interest was the drawing up of guidelines for the implementation of environmental education (EE):

- EE programmes should be oriented and focussed on current issues and problems of the environment ■ EE programmes should be directed to both formal and non-formal education with an emphasis on continuous, lifelong education ■ EE concepts and processes should be integrated in the curriculum of all possible subject areas ■ EE programmes should be interdisciplinary and action-oriented in their approach towards the prevention and solution of environmental problems ■ Leaders of the various sectors of the community, mass media and other agencies should be involved in the planning, developing, implementing and evaluating of EE programmes ■ Environmental education should consider the goals of both environmental quality and the socio-economic development of a country ■ Learning activities should take into consideration the variations in need, background, environment and developmental stage of the learner ■ EE programmes should emphasize the development of attitudes and values ■ EE programmes should provide first-hand experiences with local environments and community resources ■ Pre-and in-service training of teachers and other personnel should be carried out before the implementation of EE programmes ■ Research should be conducted on the implementation, evaluation and other aspects of environmental education, especially in those areas which aim to develop proper attitudes and values.

The Nordic Conference on Environmental Education at the University Level

The first Nordic conference on environmental education at the university level was held in Lund, Southern Sweden, 16-19 August 1976. (The Nordic countries are Denmark, Iceland, Finland, Norway and Sweden). The conference was convened by the Nordic Council of Ministers; the host institution was the Environmental Studies Programme of the University of Lund.

The two-fold purpose of the Nordic conference was, first, the exchange of ideas and experiences based on almost a decade of environmental education at the university level; and second, the development of projects for concrete cooperation among the Nordic universities, between whom so many formal and informal ties and similarities already exist. Most of the conference's work was devoted to the latter purpose.

Participants recommended integration of environmental education into all appropriate curricula rather than, as now, in separate, introductory courses. Further, it was recommended that problem-solving be made part of university EE practise. The working group on environmental education for decision-makers proposed a concerted effort in this direction to be undertaken cooperatively by universities, governments and relevant organizations. Another group stressed the importance of university participation in adult education. Since the Nordic countries are sparsely populated, rendering systems of decentralized education difficult, recommendations were made for establishing an institution similar to the British Open University, which is based on educational programmes transmitted by radio. Such a project, it was felt, could be a combined Nordic undertaking.

The North American Seminar on Environmental Education

With the financial assistance of Unesco and the cooperation of the United States and the Canadian National Commissions, the North American seminar on environmental education was convened in St. Louis, Missouri, U.S.A., 5-8 October 1976. Its organization was entrusted to the Alliance for Environmental Edu-

cation, a coalition of 29 U.S. national and local EE bodies with a total membership of over 15 million. There were 303 participants at the North American seminar.

Five central themes ran throughout the meeting: non-institutional environmental education (in the community, business, industry and government); environmental education through the media; environmental education in colleges, universities and adult education; environmental education in grades K-12 (primary and secondary school); and action strategies to improve environmental education.

The seminar had several primary objectives: (1) to bring together concerned professionals from Canada and the United States to consider current issues and problems in environmental education; (2) to provide the means for reviewing, evaluating and developing implementation plans for relevant recommendations of the Belgrade Workshop; and (3) to identify and plan towards pilot projects and action programmes aimed at solving those environmental education problems deemed most critical by the participants.

In preparation for the North American seminar, a questionnaire was sent to about 23,000 individuals and groups requesting them to identify priorities among the thirty EE problem areas identified at Belgrade. Participants at the seminar could thus begin their discussions with a fairly accurate view of their own collective sense of the priorities as well as that of those who were not able to attend.

The survey of priorities was conducted in two phases, the first of which revealed the following as of major concern: the development of EE programmes and instructional materials; the training of EE personnel; and EE research.

Nine issues with implications for environmental education were indicated in the first phase of responses. These nine issues were then linked in random order for the second phase with respondents asked to rank each on a 1-4 scale of importance. Ranked first (89.9% responded with 3 or 4) was: orderly growth—sound use of land, water and other renewable resources, i.e., sound ecodevelopment. Ranked close second: energy (as it applied to "orderly growth"). Ranked third: environmental education as a total concept, involving both physical and human components. Ranked fourth: values (their clarification as a first step towards environmentally-sound individual and collective behaviour and action). Ranked fifth: population. Ranked sixth: world-wide conservation (of natural and other resources). Ranked seventh: local environmental concerns. Ranked eighth: studies about the future. Ranked ninth: peace studies.

The target groups for environmental education were ranked in this order: elected officials making or enforcing environmental policy; teachers and trainers of teachers; government officials in general; business leaders; public school board members and school administrators; leaders in agriculture and food processing; multinational corporation leaders; television producers; publishers of educational materials; international agencies and organizations; children in early childhood and parents of pre-school children; people working in conservation, parks and reserves, etc.; union leaders, international banking officials, leaders in medicine and health services; workers, especially foremen.

Methodologies for the implementation or "delivery" of environmental education were also ranked by respondents to the survey for the North American seminar. They follow in order: make better use of existing EE programmes and materials; develop integrated approaches which involve schools, mass media and community organizations; bring resource managers and teachers together so that environmental education is based on a solid foundation of resource management principles; develop programmes to maintain public awareness; make better use of other education vehicles, such as museums, zoos, etc.; carry out a massive media campaign; print and disseminate copies of rules and regulations of state departments of education which have incorporated environmental education into their curricula; require a conservation course in secondary schools; and print a directory of national-level EE programmes and staffs.

Basically the seminar was broken down into many small working groups which considered three areas of major concern, as identified by the pre-seminar surveys: identification of critical EE content issues; key target groups; and implementation strategies appropriate to the issues and target groups—all in the context of North America.

The All India Seminar on Teaching Ecology and Environmental Sciences

A report on the All India Seminar on Teaching Ecology and Environmental Sciences, held in Jaipur, India, 27-29 December 1976, reflects the fact that until recently environmental education was largely ignored on that subcontinent. It formed "only a part of research programmes and /was/ included in post-graduate curricula of biological sciences and fragmentarily elsewhere," which inspired the organization of an all India seminar on the subject.

From the outset it was realized that environmental education should not be confined to universities, but also extend to primary and secondary education, professional education (medicine, engineering, technology and law) and the education of administrators, planners and decision makers. "Thus a broad-based multidisciplinary organizing committee was constituted," which established the following objectives for the seminar :

- to assess the present state and requirements of ecology and the environmental sciences in India at all levels of education;
- to explore possibilities of greater interaction among physical, biological and social sciences;
- to formulate suitable core curricula and education methods at different levels;
- to suggest programmes of action for improvement of environmental education in general.

About 150 participants attended the all India seminar, which was sponsored by the Government of India and hosted by the University of Rajasthan, Jaipur. Five sessions were devoted to the presentation of papers; four major working groups were formed on (1) adult education, including the education of administrators, planners and decision makers; (2) primary and secondary education; (3) university and technical education; and (4) multidisciplinary research. Each group was requested to formulate recommendations, which were submitted for plenary consideration at the plenary session. Among the recommendations adopted were the following:

Adult education—Should be learner and life-environment oriented, flexible and non-authoritarian, based on learner participation and aimed at all age

groups and segments of society. Course contents should be related to specific social, cultural, economic and environmental needs of each learner group. Programmes should be inter- and multidisciplinary. Mass media should be used more intensively. Planners, administrators and decision makers should be educated in the principles of ecologically sound development

Primary and secondary education—Ecology and the environmental sciences should constitute an essential and compulsory part of curricula at their primary, middle, secondary and "plus 2" levels of education throughout India. Teaching should be done through an environmental approach. Teachers should undergo appropriate training programmes.

University and technical training—A compulsory course in ecology as the science of synthesis should be introduced at the undergraduate level for students of all disciplines in science, social sciences, commerce, humanities, law and medicine. There should be Departments of Ecology and Departments of Environmental Sciences established in universities and other institutions as soon as possible. Suitable syllabi and core curricula should be developed and adopted with modifications to suit local needs.

Multidisciplinary research—Heads of institutions should initiate and encourage the formation of multidisciplinary and multi-institutional research teams and devise suitable administrative and academic mechanisms to maintain continuity of project activities.

A separate small working group considered the need for environmental education in medical colleges and recommended that: (1) curricula be so framed as to provide a holistic approach to the study of the environment as a totality, bringing out clearly the interdependence and interrelationships of the physical, biological and social aspects; (2) subjects such as rural and urban settlements, problems of migration and resettlements, health aspects of residential areas, schools and other public buildings, health hazards arising from occupational exposures and natural and man-made catastrophes be included; and (3) there should be active involvement and participation of the students in the study of the total environment and undergraduate students should be exposed to community-based multidisciplinary research projects related to people and their environments.

The CMEA Seminar on Environmental Education

Experts from Member States of the Council of Mutual Economic Assistance (CMEA) held a seminar on environmental education at the university level in Prague, Czechoslovakia, 1-3 February 1977. The host body was the Institute of Pedagogical Research.

University teachers predominated among the thirty-five participants from the USSR, the Hungarian People's Republic, the Polish People's Republic, the German Democratic Republic and the Czechoslovak Socialist Republic. Various faculties, technical, agricultural, economics and forestry schools were represented.

Integration of environmental education in university studies and the training of environmental specialists received the greatest attention during the seminar. Experiences were exchanged and forms of future cooperation were discussed. Environmental education itself was viewed as dealing not only with biological and ecological aspects of the environment, but sociological, psychological, esthetic and ethical aspects as well.

Environmental education was deemed necessary in the training of all professionals in the rational use of resources and protection of the environment as well as those directly involved in the prevention and solution of environmental problems.

Participants recommended continuity between environmental education at the secondary level and that taught at the university level with appropriate intensification of scientific content in the latter stage. Theory and practise were felt to be a vital part of environmental education which meant considerable activity outside the schoolroom. Here the experience of youth organizations was referred to as exemplary and work with them counselled for schools and universities.

The CMEA seminar further recommended the incorporation of environmental education elements in virtually all university courses with an accompanying coordination both vertically and horizontally. This was viewed as indispensable for the education of university students in the complexity of environmental preservation and improvement.

A special need for the exchange of experiences and the development of cooperation regarding (1) post-university studies and (2) teacher training in environmental education was noted by participants at the seminar in Prague.

The European Conference on Environmental Education

The three-day European Conference on Environmental Education, which brought together 150 participants from twenty different countries to discuss "Environment and Society, Educational Priorities," was held in London, 26-28 April 1977. The conference was organized by the Institution of Environmental Sciences in association with Farnborough College of Technology and sponsored by the Commission of the European Communities, the British Council, the World Environment and Resources Council, the National Association of Environmental Education and the Professional Institutions Conservation Council.

The European conference was principally concerned with education at the postcompulsory stage and addressed itself to environmental education in industrial countries. Over fifty major papers were presented, dealing with both the formal and non-formal educational sector. Topics discussed during the conference were:

- the Unesco-UNEP International EE Programme;
- monodisciplinary vs. interdisciplinary approaches;
- professional training and the employment prospects of graduates in the field of the environment;
- undergraduate and postgraduate training;
- the role of environmental education in the training of industry-oriented students;
- the acceptability of environmental education courses in the developed countries for the training of individuals from the Third World.

The conference itself was organized into eight sections respectively concerned with (1) innovation, (2) international reports, (3) schools, (4) out-of-school

environmental education, (5) moral and ethical content of environmental education, (6) interdisciplinary approaches, (7) courses in planning and management, and (8) courses in engineering, natural sciences and environmental health.

The sharing of experiences rather than the drawing up of formal recommendations for future implementation was the principal purpose of the conference. It is planned to publish the proceedings. For information, write: David Hughes-Evans, Farnborough College of Technology, Boundary Road, Farnborough, Hampshire, UK.

EE World Trends — A Bibliography

Marking its 50th year, the International Bureau of Education (IBE) has just brought out *Bulletin* No. 200, devoted entirely to a 77-page annotated bibliography of world trends in environmental education.

The long-awaited, long-needed bibliography of 320 items, each described in some detail, is drawn for the most part from the *International Bibliography on World Trends in Environmental Education*, compiled by J. David Lockard for the Unesco-UNEP EE Programme. The compilation served as a bibliography for the authors of the fourteen working documents on EE prepared for participants at the International Workshop on Environmental Education, held in Belgrade, October 1975.

The Belgrade working documents or trend papers, and consequently the bibliographic items, deal with fourteen themes: (1) the philosophy, goals and objectives of environmental education; (2) EE methodologies; (3) EE learning environments; (4) EE instructional resources; (5) preschool and primary school environmental education; (6) EE in secondary schools; (7) EE at the tertiary level for general students; (8) preservice and continuing EE for teachers; (9) EE studies for specialists in non-environmental fields; (10) out-of-school EE programmes for youth; (11) EE programmes for adults; (12) evaluation of EE materials and learning; (13) national policies, legislation and funding relating to EE; and (14) international and regional cooperation in environmental education.

The bibliographic items concerning these topics were sought from every region of the world.

For information concerning the purchase of IBE *Bulletin* No. 200 on "World Trends in Environmental Education" (about 11 French francs), write to: Unesco Bookshop, 7, place de Fontenoy, 75700 Paris, France. It is available in English and French. The trend papers themselves will be published by Unesco later this year. Announcement as to their procurement will appear in *Connect*.

Save trees. This issue is printed on recycled paper.

Connect, Vol. II, No. 2, is also published in French as *Connexion*, in Spanish as *Contacto*, in Russian as *Kontakt*, and in Arabic as *Arrabita*. Contents are exactly the same in all editions. *Connect* is free. Reproduction of its contents is not only permitted, it is solicited and encouraged.

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Published by Unesco
7, place de Fontenoy, 75700 Paris, France

Imprimerie Union Paris. Printed in France